SOP-Migrating Northwind database from MSSQL to PostgreSQL

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| **SOP Number** |  | | | |
| **SOP Title** | **Migrating Northwind database from MSSQL to PostgreSQL** | | | |
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## **1. Strategy for Migrating SQL Server Database to PostgreSQL:**

## **Data Migration**:Assessment and Planning:Assess the current database schema, stored procedures, functions, and data types.Plan for schema and data type conversions as per PostgreSQL compatibility.

## **Data Migration Tooling**:Use tools like "Qlikreplicate," an tool for cross-platform replication. Advantage in using the tool is we can keep the DB in Sync. Which is advantageous as we can connect the dev or staging application environment to test the dependent application are functioning normally or not before we actually make production changes

Which ensure smooth and very quick transition from one database to another database

**SSIS Package Migration**: we need to review existing SSIS packages to understand the logic and dependencies. And once we have done we have to Convert or recreate SSIS packages in PostgreSQL-compatible ETL tools like Talend, Apache Nifi or the best one suggested by the Architect

## **Service Broker Migration**:

## Understand and Identify dependencies on Service Broker in the SQL Server database as PostgreSQL doesn't have a direct equivalent to Service Broker. Consider using alternatives like RabbitMQ or Apache Kafka for message queuing.

**2. Potential Issues and Mitigation:**

Issue1: High Transaction Volume can cause Qlik replicate to cause sync delay anywhere in between 5 seconds to 1 minute the delay

Issue2:Apart from Data rest of the Database objects needs to be manually converted using tools like Full convert, Pgloader etc

**3. Roadmap for the Transition and Timelines:**

**Assessment and Planning (1 week)** Assess the current environment and plan the migration strategy. Identify dependencies, analyze data types, and plan schema mapping.

**Data Migration (1-2 weeks)**:Perform the replication on test environment to identify the datatype and other related issues. Once identified can use the same task with different connections to replicate the production data to PostgreSQL

**Application and ETL Migration (2-3 weeks):**

Recreate SSIS packages in PostgreSQL-compatible ETL tools.

Adjust application logic and queries to be compatible with PostgreSQL.

**Service Broker Alternatives (2-3 weeks):**

Identify and implement alternatives to Service Broker for PostgreSQL.

Adjust messaging mechanisms in the application.

**Testing and Validation (2-3 weeks):**

If we are using CDC test environment application can be connected and tested immediately after the migration.

## **Downtime Constraints**: Our client's max downtime limit of 4 hours for special update events is sufficient as once the background work of data replication, conversion of stored procedures, views and other objects and dependencies is done. We can confidently change the connection string of application to PostgreSQL

Although There are Different approaches to migrate MSSQL to PostgreSQL we found this is the smoothest and reliable approach with minimal downtime

## Internal References

| SOP no. | Effective Date | Significant Changes | Previous SOP no. |
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| V1 | 14-01-2024 |  | N/A |
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